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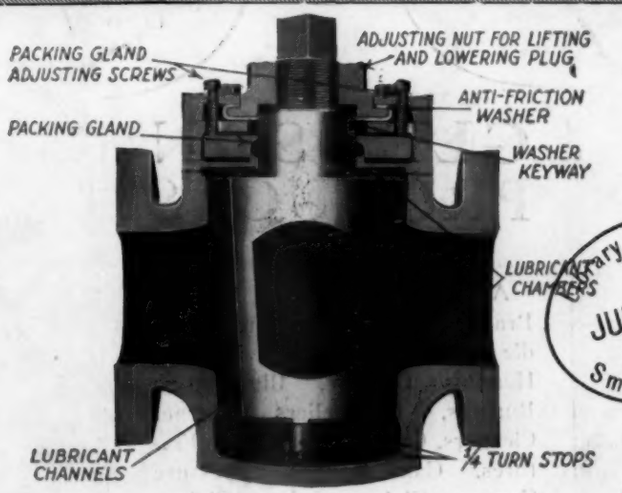
THE NEW

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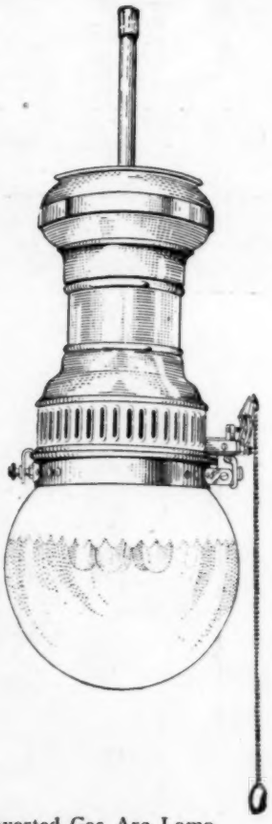

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SIXTY-SEVENTH YEAR

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*Established 1859—Pioneer of the Gas Industry*

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# Office Methods in Gas Companies

## II. Complaint procedure in gas companies

*G. L. Harris*

COMPLAINTS from dissatisfied customers are inevitable. No matter how perfect the service, there will always be complaints. And analyses of complaints received by gas companies show conclusively that 85 per cent of the complaints are not justified.

Nor is there any doubt but that the majority of these complaints are clearly recognized as unjustified by the employees whose duty it is to receive them. They could give the customers a report in many cases without the trouble and expense of an investigation. And often they are very strongly tempted to "argue it out" with the customer.

In spite of this, no employee should ever be permitted to argue with a customer until after the complaint has been investigated, and until the employee has a definite report to show to the customer. This should be a specific rule in the complaint policy of every gas company.

The complaint policy should be brief. Every employee who meets the customers in an official capacity should know what this policy is. Many companies print such a statement of policy and make it public for both the employees and the customers.

### Five Fundamental Rules

We shall not attempt to set forth an ideal complaint policy for a gas company. But a plan of procedure based on the following fundamental rules cannot help but turn many complaining customers into friends, if the office organization and the routine for carrying out these rules is well organized:

1. Make it as easy for the customer to register a complaint as to place an order for service or to pay his bill.
2. Always assume that the customer has a just complaint, and show a willingness to investigate.
3. Always be pleasant. Never give the customer reason to feel that he is being treated discourteously.
4. Try to have the customer call to receive the report of the investigation. It is much better to talk over the investigation than it is to write about it.
5. Treat each customer as an individual; and handle each customer's complaint as an individual complaint.

### Complaints Require Cooperation

When a customer presents a complaint it is usually in connection with a bill he has just received. In order to handle this complaint completely, and to safeguard the company's interest both as to the question of money and as to the good will of the customer, the following steps must be taken:

1. Make an examination of the customer's service —on his premises—and make a definite report of the examination.
2. Secure comparative statements of the customer's bills for at least a year. Fifteen months is even better as a comparative period.
3. Prevent any attempt at collecting an unpaid bill on which an investigation is being made.
4. Release the unpaid account for collection as soon as the complaint has been settled.
5. Let the customer know when the complaint has been completed. Never let an investigation be made from which the customer does not receive a report.
6. Never lose track of a complaint. Have a definite filing and follow-up procedure that will tell at any time—at once—just where the report may be found.

### Methods of Meeting Problems

These are the general problems that must be met in handling a complaint. We shall discuss separately the method of meeting each of these problems.

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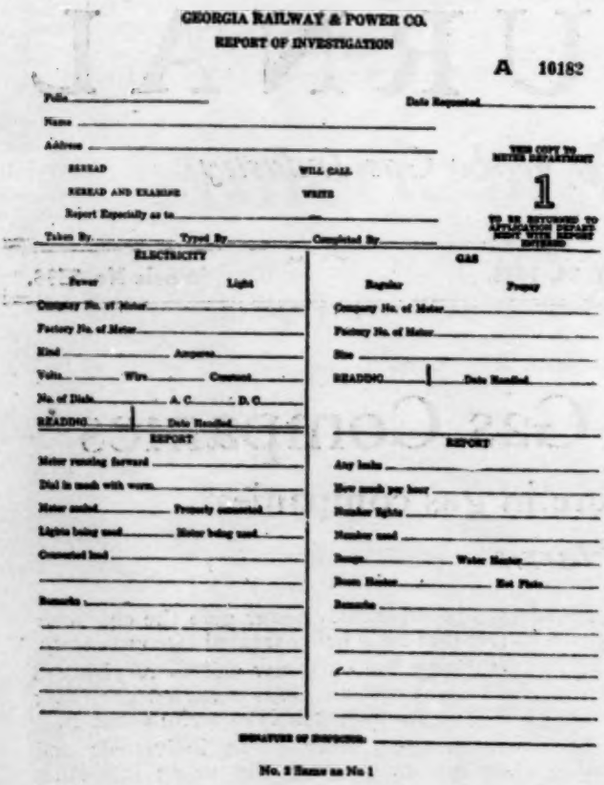
Editor's note: This is the second of a series of articles by Mr. Harris on Office Methods in Gas Companies. The third article will appear in an early issue.



GEORGIA RAILWAY & POWER CO.
REPORT OF INVESTIGATION

A 10182

Folio _____ Date Requested _____
Name _____
Address _____
REREAD — WILL CALL
REREAD AND EXAMINE — WRITE
Report Especially as to _____
Taken By _____ Typed By _____ Completed By _____
1

ELECTRICITY
Power — Light
Company No. of Meter _____
Factory No. of Meter _____
Kind _____ Amperes _____
Volts _____ Wire _____ Constant _____
No. of Dials _____ A. C. _____ D. C. _____
READING _____ Date Handled _____
REPORT
Meter running forward _____
Did it mesh with worm _____
Meter sealed _____ Properly connected _____
Lights being used _____ Meter being used _____
Connected load _____
Remarks _____

GAS
Regular — Prepay
Company No. of Meter _____
Factory No. of Meter _____
Size _____
READING _____ Date Handled _____
REPORT
Any leaks _____
How much per hour _____
Number lights _____
Number used _____
Range _____ Water Heater _____
Room Heater _____ Hot Plate _____
Remarks _____

SIGNATURE OF INSPECTOR _____

No. 2 Same as No. 1

1. One or two copies of the form on which the investigation is to be reported must go to the Service Department, or to the department which makes the investigation. These copies must provide space for the report of the investigation.

2. One copy of the report form must go to the Consumers' Accounts Department, and must provide for entering a record of the customer's bills for a year previous to the complaint.

3. One copy must go at once to the Collection Department and must hold up collection proceedings on the account which is under investigation.

## Releasing Claim for Collection

4. Immediately the complaint has been settled, a notice of release must go to the Collection Department, showing that the account is to be collected if still unpaid.

5. Arrange with the customer at the time he makes the complaint, for a time for him to call to receive the report. Make it possible for him to talk to any one in the complaint division and not necessarily to the particular clerk who takes the complaint originally. This means that every complaint clerk must be trained equally as well as every other complaint clerk. He must know exactly how to receive and record a complaint so that it will be clear to any one who may later be called on to handle it. And he should be trained carefully in reading and interpreting the report of investigation that is made, no matter what the nature of the report may be.

6. Have a central pending file where every complaint in process of being settled may be found. And if for any reason the report on the complaint is out of this file, have a follow-up plan which will locate the report. We shall discuss this problem in detail in our analysis of the complaint routine.

In short, the placing of a complaint by a customer immediately sets in motion a number of papers, and involves two things:

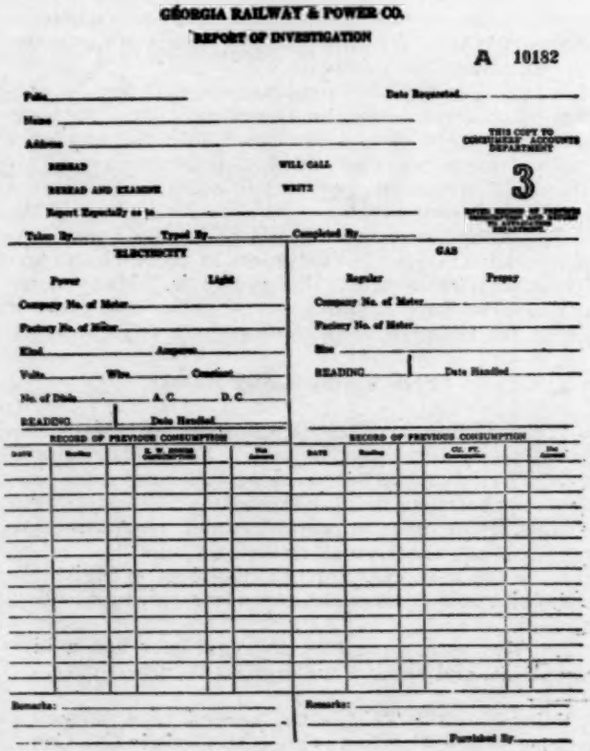
1. The cooperation of several departments.
2. An absolute control over the routine, placed in one central location. Upon this central control depends to a large extent the degree of cooperation that can be secured.

## Complaint Forms

The complaint forms which we shall use as the basis for our discussion of the complaint routine are shown here. They are designed for a company furnishing both gas and electric service, but can easily be adapted to a company furnishing only gas service.

The request for investigation is printed in pads, and is made out in duplicate by the employee receiving the complaint. This form is very simple, yet it contains all the information necessary for making the investigation. Space is provided for entering the meter number to be investigated, as well as the folio reference to the customer's account.

The letters "B. P." and "B. N. P." stands for "Bill Paid" and "Bill Not Paid." This information is frequently of value in analyzing and handling the complaint.



GEORGIA RAILWAY & POWER CO.
REPORT OF INVESTIGATION

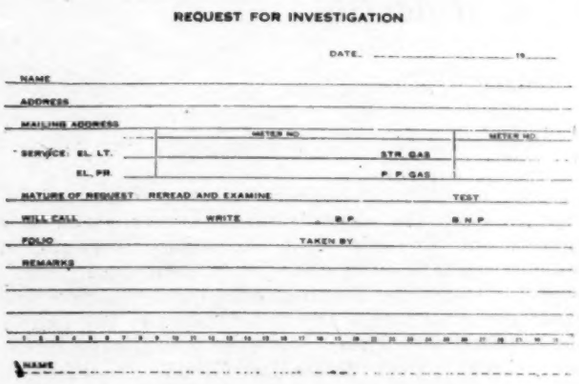
A 10182

Folio _____ Date Requested _____
Name _____
Address _____
REREAD — WILL CALL
REREAD AND EXAMINE — WRITE
Report Especially as to _____
Taken By _____ Typed By _____ Completed By _____
3

ELECTRICITY
Power — Light
Company No. of Meter _____
Factory No. of Meter _____
Kind _____ Amperes _____
Volts _____ Wire _____ Constant _____
No. of Dials _____ A. C. _____ D. C. _____
READING _____ Date Handled _____
RECORD OF PREVIOUS CONSUMPTION

GAS
Regular — Prepay
Company No. of Meter _____
Factory No. of Meter _____
Size _____
READING _____ Date Handled _____
RECORD OF PREVIOUS CONSUMPTION

Remarks: _____
Remarks: _____
Furnished By _____


REQUEST FOR INVESTIGATION

DATE ____ 19____

NAME

ADDRESS

MAILING ADDRESS

METER NO. METER NO.

SERVICE: EL. LT. STR. GAS

EL. PR. P. P. GAS

NATURE OF REQUEST REREAD AND EXAMINE TEST

WILL CALL WRITE B. P. B. N. P.

FOLIO TAKEN BY

REMARKS

NAME

Note particularly that the word complaint is avoided. This should be the case with every printed form which the customer sees.

The request for investigation is four inches by six inches. It is designed to fit the pocket of a visible record cabinet, and by means of the date figures 1 to 31 on the visible line it becomes the follow-up control on pending complaints.

### Report of Investigation Form

The report of investigation form is made in five copies at one time. We have shown here copies number one and number three. Copy number two is the same as number one, and is to be retained in the Service Department as a record of work done.

Copy number four contains only the name and address and folio reference. It is called the "Hold-Up Notice" and is sent to the Collection Department. This copy can be designed so as to fit into a visible pocket, so that reference to accounts being held up can be made quickly.

It is extremely important that every delinquent notice sent out be checked against the file of hold-up notices. Nothing could be more unfortunate than for the customer to receive a notice of delinquency just after he has been promised a careful investigation of his complaint.

### Pending File Copy

The fifth copy goes to the pending file and is filed alphabetically by the customer's name. This is done at the same time that the copy of the request form is filed in the visible pocket, also alphabetically by customer's name. A colored signal over the date figure will then insure bringing the file copy of the report of investigation up for attention on any date desired.

Even though each separate copy of the report of investigation form is to serve a different purpose, there should be a uniform sized form, identical in such respects that it will enable the typist to prepare all of the copies at one operation. And we would emphasize at this point that this is true of every form referring to the same order or routine, even though the function of the form may vary widely in the different departments to which it goes.

### Operating the Complaint Routine

One copy of the request for investigation is for the use of the workman who makes the investigation on the customer's premises. This form is small enough for the workman to carry it in his pocket. Any detailed remarks the workman wishes to make can be entered on the back of the form.

The report is then copied on the report of investigation form which was sent to the Service Department. One copy of the report is returned to the pending file, and one copy is retained by the Service Department.

When the Service Department's report, and the comparative statement report from the Consumers' Accounts Department are received at the pending file, the report is ready for the customer. If this happens before the follow-up date arrives, as shown by the signal on the form in the visible cabinet, the report is left in the file awaiting the call from the customer. If the follow-up date arrives first, the colored signal will bring the report out of the pending file, and the missing copies can be traced by telephone.

### Two General Classes of Complaints

Complaints may be divided into two general classes: "Write" or "Will Call." The former should be turned over to a complaint clerk as soon as the two copies are returned, and on the basis of the information secured the complaint clerk can write to the customer. But as we have noted above, it is much better to have the customer call than it is to write him a letter.

Whenever a report is removed from the pending file the follow-up signal should be removed from the form in the visible file, and a new signal inserted to insure further follow-up, until the complaint is finally settled.

### "Will Call" Complaints

"Will Call" complaints should generally be allowed ten days before being removed from the pending file, even though the two copies of the report are received before this period elapses. In many cases the customer calls within ten days. If he does not call, the report should be removed from the pending file on the follow-up date, as shown by the signal in the visible file.

Each report should be studied separately and a letter should be written or a call made. On most complaints a form letter is sufficient, but if some unusual fact is developed by the investigation a special letter should be written or a personal call made.

### The Complaint Letter

The letter should always ask the customer to come in to discuss the report. And after the letter is written the report of investigation should be replaced in the pending file, and another follow-up signal placed on the request form—five days in advance.

A sample form letter used in routine cases is reproduced here. This letter, with slight variations, will fit most complaints where the customer has promised to call and has not done so. But we should caution any company using such a letter that the letter should be changed at regular intervals, and that each letter be typed individually as a personal letter to the particular customer concerned.

(Continued on page 82)

# The Story of Carburetted Water Gas*

## III. Development of details

*T. W. Stone*

Chief Engineer, Western Gas Construction Company, Fort Wayne, Ind.

THE Pier Process is a recent development peculiarly adapted for using soft coal. A pier of triangular cross section 4 feet on a side is built on top of the grates and is said to provide better heating of the entire fuel bed and so increase the soft coal capacity of the set.

Other soft coal developments are hopper bottoms on carburetters for removal of blown over fuel. Larger quick opening doors in carburetter and superheater bases for the same purpose. Also the use of siphon down draft pipe to exhaust gases from the ash pit when the charging door is open for inspection or filling. This decreases smoking and burning at the charging door, a considerable nuisance in some soft coal operation.

The Blow Run developed early in the soft coal practice consists in passing part of the blast products into the holder along with rich coal gas coming off at the same time.

### Economizing Processes

A decided step was made in water gas progress with the introduction of recent economizing processes or cycles. These are the Back Run, Reversed Air Blast, Bypass or Chrisman cycles. They afford economies in the thermal balance of the machine in that they economize the heat produced in the generator by either returning to the generator heat that is not needed in the superheater or by not carrying from the apparatus with the down run gases heat which in the old Lowe cycle would be wasted in the wash box or by combinations or variations of these two items.

### Back Run

The Back Run, the original of these processes, economizes by using the down run steam (admitted at the top of the superheater) to transfer heat from the superheater back to the generator and also passes the down run gases to the tar batter at the temperature of generator base which is much less than the carburetter temperature. In the old practice these gases were taken through the carburetter and raised in temperature some 700 or 800 degrees and immediately cooled in the tar batter.

### Reversed Air Blast

The Reversed Air Blast is a modern economizing process whereby excess heat is carried toward the superheater and redeposited in the generator by passing a portion of the blast air in a reverse direction through the superheater and carburetter and generator. The air blast travelling backward in this direction is quite effective in maintaining clean checker brick. It also improves clinker conditions, since the blast is not all concentrated in one end of the generator. The down run gases pass direct to an outlet pipe from the base of the generator to the tar batter inlet and enter the tar batter at the low temperature of the generator base.

### Bypass or Chrisman Process

The Bypass or Chrisman Process which are local names for substantially the same cycle, is provided with an offtake pipe from the base of the generator so that down run gases are carried to the tar batter without being overheated. All of these processes are devised to economize the heat in the generator and when properly apportioned to their respective cycles are effective in their purpose and produce a substantial reduction in the fuel required per thousand feet of gas.

The above processes introduced the generator-washer pipe which is connected direct from the base of the generator to the offtake pipe from the superheater or to a secondary connection to the tar batter, according to the particular commercial design. This development brought with it the elimination of the hot valve, which in its many varied forms and except at its best in one or two later developments, was a continual source of worry and expense to the gas operator. At this time one or two types of hot valves had been developed which have given almost continuous service. Now the location of the reversing valve was tranferred from the outlet of the generator to the inlet of the seal. There are at present two or three commercial types of this valve; one a two-way damper valve, hydraulically operated and seating against the pressure in the machine; another, a two-way poppet type or double seated valve, seating under the internal pressures of the machine; and third, a double inlet tar batter valve with two parallel inlets to the wash box having disc valves of the globe type seated under water against the pressure in the apparatus, and with self locking devices.

### Steam Accumulator

Another development in the interest of economy is the perfection of the details for attaching a steam accumulator to the water gas generator. It effects its economies by storing steam from the waste heat boiler or other source after it has passed through a blower turbine or other auxiliary units. This

* Concluded from last week.

exhaust steam is collected in an accumulator apportioned so that the energy of the exhaust steam may be stored during the blow and released in the form of steam for admission to the generator base during the steaming period.

### Supply Regulation and Control

Other recent developments, the automatic control of supplies to the generator; the auxiliary means for indicating, recording, and regulating the flow of steam and air to the generator, have been introduced by the installation of more accurate flow meters and better regulators to maintain the source of supply constant so that the input shall be the same in the corresponding time intervals of successive cycles. Within the year we have the development of the Smoot automatic devices which have for their purpose to maintain constant, predetermined input independent of internal resistances in the machine. This seems to be a step farther in advance and requires only some time for commercial demonstration and acceptance.

### Waste Heat Boiler

One of the greatest wastes in water gas operation during the seventy-five years of its use is probably the heat in the blast gases from the superheater. Lowe indicated the desirability of conserving this heat in his original design which showed a waste heat boiler at the outlet of the stack and Glasgow in later years lamented the fact that no satisfactory means had been provided for preheating the blast or conserving the heat from the stack gases. Waste heat boilers have been in use in some installations, but not in great proportion for any number of years, a few use the heat from the run gases as well as from the blast gases.

In the last eight or ten years the use of a vertical fire tube boiler on blast gases only has been the more generally accepted practice, and within the last four or five years a water tube boiler has been used in a great many installations and proven quite satisfactory, although this latter installation is usually more expensive than the fire tube type.

Just at present there is on the horizon a new development in waste heat boiler recovery which, if successful, will prove quite simple in construction and maintenance and tests offer greater economies than have been obtained in previous types. Waste gases that left the stack at from 450 to 550 degrees Fahrenheit, in early tests indicate the possibility of being cooled down to 350 or close to the temperature corresponding to the boiler pressure.

### Automatic Charger

One of the more recent developments is the successful operation of the automatic weighing and charging machine. It receives fuel from overhead bunkers, weighs it into the charger in small amounts proportioned to one charge per run and then distributes this fuel in a predetermined manner over the fire bed. Feeding is arranged so that fuel may be fed from two adjacent hoppers at the same time, using different fuel from each and mixing it in any proportion desired, 100 per cent. coal or 100 per cent. coke may be used, or these two mixed in proportions as wanted.

The distribution over the generator fuel bed may be uniform, laying each charge evenly by the use of a whirling spreader. This distributes the material around the outer edge, forming a hollow center, with the tendency for the larger pieces to roll in. It may be set to distribute around the periphery in graduated charges, that is, six or eight charges to the revolution as may be desired. These units are provided with sight holes so that a view may be had of the top of the fire. They are direct connected to and operated by the automatic controls. These operating connections are through flexible hose so that they need not be taken down when the charger is to be momentarily removed from the generator door. I say momentarily advisedly as these machines have been moved off and back into place in one minute.

The maintenance of a uniform depth and condition of fire bed must surely show marked increase in capacity and economy by avoiding a low fire, with a hot top and a high fuel bed with a cool top. Such diametrically opposed conditions have always followed one another about once every 45 or 50 minutes (depending upon the charging period). These short charging periods produce uniform depth and condition of fire and more running time per hour. This must show improved results similar to those obtained by changing from long blows and runs to the short ones of automatic operation.

### Self-Cleaning Grate

The newest and most important recent development is probably the successful use over a long period of a generator in which continuous operation at normal capacity without clinkering has been maintained for periods of thirty days and over. This has been accomplished by special mechanism in connection with the generator grate which mechanically removes the ash and clinker as rapidly as it is formed, or at least as rapidly as it moves down to the bottom of the water gas machine. The combination of the automatic control, a proven charging apparatus, and a proven clinker remover will go far in increasing the sendout of water gas houses, reducing holder costs and providing against the difficult labor conditions which more and more threatens the confidence which the gas man needs to face successively increasing peaks in the sendout.

### Conclusion

It is a long time and devious road from the first Lowe water gas set to such a fully automatic and continuous machine as will probably be in successful operation within another year. It measures seventy-five years of active competition and endeavor by operators and manufacturers of water

gas apparatus. It shows a large gap between the capacities and economies of the first types of machines and what can be reasonably expected today, yet the machine as pictured when finally in operation will have succeeded in carrying out only substantially the same process more economically in an automatic rather than in a manual way. Lowe showed all the functions of the water gas process of today, except as these have been somewhat refined. The fundamental process remains much the same, but the means of accomplishing it has been highly improved. Continuously increasing labor costs have made necessary the successive mechanical devices which were not used at the start.

# That Summer Load!

## How it may be built up to take care of winter house heating

*J. E. Bullard*

A PROBLEM that all gas companies must face sooner or later is the building up of a summer load to offset the heating load. The American public is bound to demand gas house-heating. There is no other form of house-heating that is so convenient or that meets every requirement so well. This in itself is enough to make it the heating fuel of the present.

The automatic feature of gas heating has a strong appeal. It may not seem like an especially easy matter in some communities to sell gas for house heating, but that is because the people there have not learned enough about it. Automatic machinery of every kind has, during the past generation, entered into the lives of the people. In the home, in the factory, in the office, everywhere there is work of any kind to be done there will be found some automatic machinery.

Each year finds it harder to secure the services of a man who can be depended upon to care for a coal fire in the heating plant of the home. There are few people who are as willing to do hard and disagreeable work as to watch a machine do it. Such changes as these from manual labor to the operating of automatic machinery have been taking place with a high degree of rapidity since the war.

### Gas House-Heating Has Come to Stay

Whether or not a gas company wants the house-heating business, whether or not it will increase the winter peak load to a degree as to make the business unprofitable, everything points toward the gas company being forced to sell gas for house-heating purposes. Therefore, it is wise now before house-heating has made any serious changes in the load curve to look around for some way to secure a summer load that will offset house-heating.

Refrigeration is one load that immediately comes to mind. At the rate household refrigerating machines are now being installed it begins to look as though the time will come when the ice man will have to find some other field for his effort. However, at the present time most of these machines are electrically driven. The gas machine has not yet been pushed by the gas company. Perhaps one reason is that it uses so little gas. Another may be the fear that the refrigerating machine will require too much servicing.

A thought worthy of consideration is that it should be possible for some time to come at least to sell a hundred refrigerating plants to one house-heating boiler, provided sufficient sales pressure is put back of the refrigerating machines. There is little question about the gas refrigerating machine being the cheapest way possible of holding the household refrigerator down to a temperature where the air will be dry and the food perfectly preserved.

### Automatic Control of Temperature

Another thing that may well be considered is that the strongest sales argument for gas heating is that the temperature is automatically maintained at the desired point during the heating season. If that sells gas heat, why should people, who can afford it, not be willing to have a more complete plant installed that will assure exactly the same temperature in the house throughout the year regardless of the outside temperature? If the temperature outside is lower than that desired inside the air is heated. If the temperature outside is higher than that desired it can be cooled. With gas it is possible, and there is no reason why it cannot be made practical, to install a plant that will assure uniformity of inside temperature regardless of the outside temperature. A cooling plant in the attic is surely just as reasonable as a heating plant in the basement. When the temperatures are uncomfortably high in summer it is desirable to have some way to lower them just as it is desirable to raise them in winter.

### Water Heating

Summer water heating is a field that has been given some consideration, but which has not yet been developed to the degree that is possible. In many a large building heating the water during the summer months is a considerable problem. Not until a very careful investigation is made will it be realized in how many cases water can be heated both better and cheaper with gas. During winter, when the heating plant is going, it may be cheaper to heat with coal or oil, but during the summer either the hot water service is very far from satisfactory or the service costs more than it would if automatic gas heating was relied upon.

Every large building of any kind is a prospect for summer water heating. Every factory, every hotel, every office building, every store, virtually every building of any size must have a hot water supply of some kind. The volume of gas that can be sold during the summer for this purpose often proves amazing when an accurate survey is made. There is reason to believe that in many communities at least enough of this business can be developed to offset the house-heating load as fast as that load is taken on.

Refrigeration and summer water heating in fact are two out-standing summer load-building possibilities. But these are not the only loads that can be taken on. The more careful the survey made in any community the larger the number of possibilities that will be found. It is just a matter of learning the purposes for which heat is used and during the summer at least that heat can be supplied best through the medium of gas.

**Industrial Uses**

Certain industrial operations, for, example, require a certain amount of heat. It may be that during the winter months this heat can be supplied most economically from the heating plant. During the summer, on the other hand, it is an entirely different proposition. Then gas may prove much more satisfactory and far more economical.

The practice on the part of industrial plants of buying electric power rather than generating power on the premises, a practice that is coming to be more and more universal, is creating uses for gas heat during the summer months which never would have existed had the manufacturing plant continued to generate its own power. There may be cases where electric power cannot be sold until certain heating problems are solved.

Laundries, for example, require heat for some of the operations. In winter it may be practical and economical to secure this heat from the same plant that is used to heat the building. During the summer months, on the other hand, it might work out much more satisfactorily to use gas heat and electric power. In other words, there are summer loads that can be secured more easily if the electric man and the gas man co-operate.

**Summer Sales Efforts Necessary**

On the other hand, unless rate systems are worked out that assure returns sufficient to meet all fixed charges regardless of what changes may take place in the load curve, or unless sales efforts are so directed that loads are taken on that will improve the load curve, there is always danger that the time will come when house-heating may have a bad effect on a company. It is not necessary to seek house-heating to build up a winter house-heating load. Sooner or later people will come to the company and demand gas for house-heating. However, it is necessary to sell gas to the summer user because he has not yet learned of the advantages of using gas during the summer months for those purposes where it can be used to the greatest advantage. Where house-heating is being actively sold, it would seem wise to have the house-heating salesmen devote part of their time to creating a summer load or to have a separate summer gas sales department.

# Gummy Deposits in Mains and Meters*

## Their relation to degree of oil decomposition in water gas set

*George E. Wagner*
General Superintendent, Madison Gas and Electric Company

DURING January, 1925, the Madison Gas and Electric Company had an unusual number of D. R. gas meters. A number of those meters were opened and were found to contain a deposit which had caused the diaphragms to tear. The The deposit was similar to the deposit we had found at about the same time in a few mains. When the meters were opened, the deposit was fluid but after it had been exposed to the air it hardened to the appearance and consistency of varnish, making its removal from the diaphragms and meter case very difficult.

Trouble of this nature had been experienced by numerous gas companies and has been studied by a special committee of the American Gas Association, R. L. Brown, chairman. The action of the deposits in our meters was similar to that described by the committee who showed that the deposits were highly unsaturated hydrocarbons which took up oxygen very readily. They had found also that these hydrocarbons combined with each other and formed compounds still more complex, and when so altered were not readily soluble in the solvents ordinarily found in gas or tar.

The information given in this paper has been gathered largely from the report on this subject by the special committee of the American Gas Association and a report by Prof. Kowalke of the Chemical Engineering Department of the University of Wisconsin.

**Indene and Styrene**

The two hydrocarbons found in water gas which are the chief causes of gummy deposits are indene and styrene. Prof. Kowalke examined the deposits in our meters and expressed the opinion that they were mainly indene and styrene and were probably caused by the incomplete decomposition of the gas

* Read at the annual meeting of the Gas Section, Wisconsin Utilities Association.

oil in the water gas set. He suggested that a study be made of the "light oils," such as benzene, toluene, xylene and solvent naphtha, produced in the water gas set under various operating conditions.

Since the deposits were affected by oxygen it was advisable to discontinue immediately the addition of air to the gas at the exhauster which was added for reviving the oxide in the purifiers. It was also suggested that we add, drop by drop, "naphtha cut" into the distribution mains at the pressure house. Naphtha cut is a by-product from the manufacture of Blau gas.

The addition of air to the gas for reviving the material in the purifiers naturally increased the free oxygen which would combine with the unsaturated hydrocarbons in the gas drips and be a contributing cause to the formation of viscous drip oils. We concluded that while the presence of oxygen was beneficial to the purifying material its detrimental effects on the deposits in the mains and meters more than offset those advantages. The admission of air was therefore discontinued.

### Use of Naphtha Cut

The addition of naphtha cut was made to increase the amount of condensable vapors in the gas not subject to gum formation. Naphtha cut dissolves indene and styrene and carries them to the drips. Analyses of the drip oil subsequent to the addition of naphtha cut showed an increase in the low boiling point hydrocarbons.

Gummy deposits were rarely heard of in the days of 22 cp. and 600 B.t.u. gas because there was sufficient low boiling point "light oil" to keep all gum forming substances in solution. It therefore seemed reasonable that anything which we might do to increase the low boiling point light oil content in our gas would help to solve our difficulty.

When oil is sprayed into the carburettor of a water gas set the result desired is complete conversion of liquid hydrocarbons into permanent incondensable gaseous hydrocarbons. This condition is never completely realized in practice but may be closely approached. It has been shown by several investigators that when a petroleum hydrocarbon such as gas oil is heated the products of destructive distillation or carbonization as the temperature is increased are in sequence: (1) paraffines, (2) olefines, (3) acetylenes, (4) higher homologs of benzene, (5) xylenes, (6) toluene, (7) benzene, (8) naphthalene, (9) anthracene, (10) lampblack. Thus, as the temperature of distillation approaches a certain critical point the condensable products are more and more unsaturated and have more and more the property of forming "addition products" which may be complex in structure, easily condensed and difficult to control. This is particularly true of the complex compounds referred to as the "higher homologs of benzene," which include indene and styrene. Upon further increase in temperature the less complex compounds of the benzene group are produced along with desirable compounds such as methane and ethylene, etc. At still higher temperatures the oil is completely decomposed into hydrogen and lampblack.

### Temperature an Important Factor

It should be remembered that all of these products are formed simultaneously in a water gas set but certain temperatures are more favorable than others for the production of the permanent gases and hydrocarbons of higher vapor pressure that do not easily condense. The ideal condition in gas making is to produce a gas from which nothing condenses out. The nearest approach to the ideal is to make condensation difficult. If condensation occurs, the condensate should be fluid and permanent or stable in chemical behavior. Because of its high vapor tension and chemical stability, benzene stands first among the desirable condensable hydrocarbon vapors usually found in manufactured gas; toluene, xylene, solvent naphtha follow in the order named in desirability.

The destructive distillation of an oil in a water gas set depends upon, (1) temperature, (2) rate of oil input, (3) fineness of division of oil, and (4) on the intimacy of contact of the oil with the hot checker work. Laboratory tests have been made to determine the best temperatures and rates of oil input to produce the desirable decomposition but the results of these determinations cannot be applied directly unless the laboratory conditions can be duplicated. It was, therefore, decided to determine the character of the condensable hydrocarbon vapors in the gas leaving the works under various operating conditions.

### Making the Test

To study the character of the condensable vapors in the finished gas a sample from the outlet of the purifiers was made to pass through an oil scrubber in which all condensable vapors were removed. The oil scrubber used in these tests consisted of a piece of 2" pipe, 4' 6" long filled with smooth pebbles from ¼" to ½" in diameter. A petroleum oil known as "straw oil" and having a boiling point of over 250° F. was allowed to flow from an overhead reservoir over the pebbles at the rate of about 50 c.c. per cubic foot of gas. The gas passed upward through the scrubber. The oil on leaving the bottom of the scrubber flowed into a seal flask and was then put into a storage can. The gas flowing from the supply main into the scrubber was measured by a wet test meter and regulated to six cubic feet per hour. The volume of oil used per test varied from 2.1 gallons to 2.64 gallons and the volume of gas from 151 cubic feet to 230 cubic feet. The period of absorption varied between 12 and 24 hours, so as to obtain a representative sample of gas.

### Light Oils Removed

The hydrocarbon vapors or "light oils" absorbed by the straw oil were next removed by steam distillation. Then the "light oils" were separated by fractional distillation according to A. S. T. M. standards into groups boiling over respectively (1)

(Continued on page 86)

# Canadian Gas Business Growing *

## Essential problems discussed in presidential address

*J. J. Humphreys*

President, Canadian Gas Association, Montreal, Quebec, Canada

I HAVE been looking over some old records and as a consequence feel that I have the right to appear as "The Red-Headed Apostle of Optimism" and my message is for the gas men to dry their modesty and boast, truthfully, of their business, their city and their country.

Both Pollyanna and Mr. Babbitt were constructive characters in modern fiction.

### Growth of Gas Business

Some of the figures which have brought me to this cheerful state of mind are on this list of remarkable increases in Canadian gas sales:

| | Increase | Over Year |
|---|---|---|
| Montreal, | 658%.... | 1900 |
| Toronto, | 650%.... | 1900 |
| Vancouver, | 1664%.... | 1905 |
| Quebec, | 723%.... | 1905 |
| Victoria, | 518%.... | 1905 |
| Guelph, | 314%.... | 1905 |
| Winnipeg, | 300%.... | 1905 |
| London, | 270%.... | 1905 |
| Ottawa, | 288%.... | 1910 |
| Peterboro, | 200%.... | 1912 |

*J. J. Humphrey*

But don't become complacent, for "the gobelins will git you if you don't watch out" and the oil man, the electric man and the coal man all want the very same customers you are trying to get and hold for industrial heat, house heating, refrigerating and cooking. Keep plugging, boasting and advertising and we will very soon be able to say to Bridget on each May 15th, "turn the gas off the furnace and light the refrigerator," simply reversing the command on October 1st and winding an eight-day regulating clock through the winter.

Recent questionnaires have shown that roughly two-thirds of the gas companies are showing increased consumption per meter.

Actually I think it is an economic error for a gas and electric utility to exist in the same town with separate entities. A double overhead is wasted money and so is unnecessary competitive effort.

### Coke

As the making and the selling of coke is a most important part of a gas man's duty, it merits very much more attention and care than it usually receives. If the Canadian Government's desire for economic smokeless fuel independence is constructive and not merely political, it is the duty of the gas companies to further this end, by making more coke for the smokeless fuel market, receiving such governmental assurances and abatements as shall be necessary to make the coke business surely profitable, otherwise the simple old law of supply and demand will decide whether we manufacture enough coke for sale to others or only to supply our own water gas plant requirements. At present good foreign coke can be and is being brought into Canada and sold at prices which make competition very keen for any Eastern Canada coke manufacturer. Good coke is now reaching Canada from Germany, Belgium, England and the United States, all of which will be withheld whenever their local price is high enough.

### Which Coke Is Better

Incidentally when coking legislation is being considered, it is manifestly unjust to name the process by which a good domestic coke shall be produced. To encourage coke ovens only and penalize retort coking plants is to cause a waste of present productive capital. There is at present a diversity of opinion as to processes and processes are continually changing. During the past year there have been extensive tests and more good papers published in England and the United States, on coke structure, speed of ignition, reactivity with steam, shatter tests, sizes than ever before and tests are continuing.

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* Delivered at the 1926 Convention of the Canadian Gas Association.

We will soon appreciate why one European company makes three kinds of coke to meet the requirements of different users.

We can be proud that one of the principal prizes in the recent coke competition in England was won by a Vancouver gas man.

### Gas Rates

Changes in gas rates have kept them far below the index figures showing the changes in the cost of other commodities and there is a growing tendency to make lower rates, particularly for larger continuous industrial users who cannot otherwise be secured.

The United States Interstate Commerce Commission and other railroad control bodies have always sanctioned lower ton mile freight rates for coal, grain, etc., than for other more valuable products and the electric companies have also been allowed to make various low but perfectly legal rates which would secure otherwise impossible business, therefore there seems no good reason why gas should not be sold at extremely low rates for certain purposes such as glass works, brick yards, ceramic companies, house heating, etc., even if we would be unable to accept such a low percentage of profit on all our business.

### Rates Not Discriminative

So long as the same rates for the same purposes are open to all, we should be able to avoid the bugaboo of discrimination and greatly increase our business.

So far I know of no gas company selling gas for chemical purposes such as synthetic alcohol, synthol, hydrogenation of oils to fats and greases. These plants usually attend to their own gas making, whereas we as gas specialists should sell them, if they can be induced to locate near us, or we should even go into any business of this kind which would be profitable to our owners and reduce our overhead by creating a greater gas load.

### New Construction

During the past year there has been ordered in Canada another battery of coke ovens, a large installation of vertical retorts has been completed and a large water gas extension made. These diverse plants correctly and satisfactorily meet the conditions of the three purchasing companies. In the United States, during the past year, at least seven gas companies have ordered coke oven batteries, among them New York, Boston, Rochester and another company of the largest size, and several companies have ordered vertical retort plants but I believe I am safe in saying that the capacity in carburetted water gas installed still exceeded that of any other process.

### Bituminous Coal in Water Gas

The economy of using bituminous coal in water gas sets has greatly aided the water gas process.

Important changes have been made in the liquid purification process during the year, some of the details of which will be given at this meeting.

Practically all large gas holders ordered in America during the year, have been of the tankless type but in England the builders say the spiral guided holder has filled the corresponding field and no tankless holder has yet been built in England.

There has been a remarkable increase in the number of high pressure storage holders installed in the United States, some of them floating on the line and others electrically loaded to high pressures and automatically released to feed the lines in case of power failures.

There have been more of the spherical type installed than of the cylindrical type.

The high pressure holder fills a real want in these days of medium and high pressure boosting, for unlike our electrical brethren, we never expect a shutdown of the gas supply.

### Conclusion

All of the foregoing familiar facts definitely show that your gas business is growing and that it is progressive in policy and in engineering methods but the real seal of approval is the enormous demand for utility securities and great success of all customer ownership stock sales.

Enjoy the Country and Seashore as never before
There is no need to stay indoors on beautiful, warm days when you have a modern, gas range. It will cook your food quickly and thoroughly, with little attention.
Gas ranges equipped with oven heat regulators will automatically cook a whole dinner perfectly while you are away enjoying the whole afternoon. Simply set the regulator before you go.
Various styles and sizes of the latest gas ranges to suit every purse and need are on display. Visit the nearest Gas Office and make your selection.
Gas Offices
Telephone: TRIangle 7500
The Brooklyn Union Gas Company

*A pertinent and timely suggestion for hot weather enjoyment, through use of heat regulated gas ranges.*

# As The Journal Views It

## DOES EDUCATION PAY?

The question is often asked "Does the Education of Employees Pay?" This query arises not only in this country but also abroad. It is frequently asked in England and on the continent of Europe, for there are many who do not understand the real significance of the education of the employee and who still doubt that any good can come from it and accrue to the credit of the gas company.

It is often argued that in the last analysis it is impossible for any business undertaking to engage in altruistic activities without their deriving some benefit from them, no matter how indirect this might be. Of course this is essentially true for gas companies as well as any other business. A business exists essentially for the purpose of earning a profit and paying dividends to its investors. If it did not do so, it could not exist at all and hence, a primary function of the gas company and its administrative officers is to see that gas is sold at a profit and that a reasonable return is obtained on the money invested in the company.

However, the question of employee education must not be considered in a shortsighted manner. It must be remembered that a better-trained and better-educated employee means a more efficient employee and an organization composed of such employees is one that would be desired by any industrial enterprise. The education of the employee, exemplified in teaching him how better to fulfill his duties, often redounds to the direct benefit of the industry. And in addition thereto there are all the many indirect results that are obtained from a contented body of employees, from a wider outlook and truer harmony derived from the common meeting of employees with employers and the spirit of happiness and good-will in the ranks which are so important to the progress of the modern gas company.

Those companies who have been devoting their time and money to the education of the employees have found from their experiences that it pays. Of course, there may be individual cases cited where the employee was wholly unappreciative of what was being done for him and where the efforts of the company exerted in his behalf were entirely wasted. But these isolated instances do not make a case against the continuance of this broad policy.

The gas industry is to be congratulated in fact, on the thorough manner in which its educational activities are being carried out today. There seems to be no limit to what a progressive gas company will go in order to afford their employees an education and training. There is no question that this money spent on education is not really an expense at all in the general sense of the word. Such money does not increase the costs, for in fact, it reduces them.

It enlightens and profits him who gives and him who receives.



## HOW TO PRESERVE YOUR GAS STOVE

Many new gas stoves are spoiled at the beginning of what should be a long life of usefulness by neglect of certain simple precautions, says the New York State Committee on Public Utility Information.

A new stove should never be allowed to grow too hot the first time it is used. Gradual heating and cooling at this time will anneal and toughen the metal, whereas sudden heating to a high temperature may cause parts of the stove to warp permanently or even to crack.

Rust in the oven can be prevented if the door is left open for a few minutes after lighting the burners. This permits the moisture to escape.

Makeshift cast-iron tops should never be put on open-burner gas stoves. They not only waste gas, but may be dangerous producers of carbon monoxide gas through imperfect combustion. The only proper top is that designed by the manufacturer for the stove it is to be used on.

Pans and other utensils will never be blackened if the stove burners are kept clean and properly adjusted.

Save gas when you cook! There is a big difference between using enough gas and using too much. Water can only be heated to the boiling point, regardless of how much flame is kept under the vessel after boiling starts.

And gas is no hotter ten minutes after the burner is lighted than it is the first second. Do not light the burner until you are ready to use it.

If the burners pop or whistle, they need adjusting. Your gas company will do this for you gladly.

# GAS MERCHANDISING

*Domestic – Industrial*

# Ideas for the Man Who Sells

*William H. Matlack*

### REACH THEM WITH RECIPES

WHEN you mail out a merchandise statement, or gas bill, enclose a recipe. Home managers by the tens of thousands are ever eager to have new and tested recipes. Send them recipes that your home economics expert has tested

and do not be afraid to let her secure a bit of publicity from it. Say: "Tested Recipe For ——— by Miss Blanky Blank, Our Home Economics Expert." Home managers like to try new and tested recipes and with the war on to get them to do more home cooking and less eating out of a can, there is nothing quite so effective and inexpensive as the recipe sent to them at frequent intervals.

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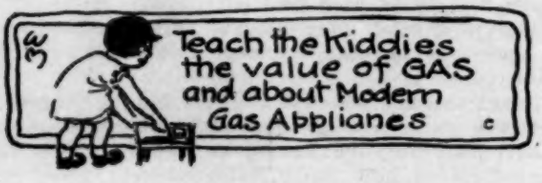
### LESSONS TO THE LITTLE ONES

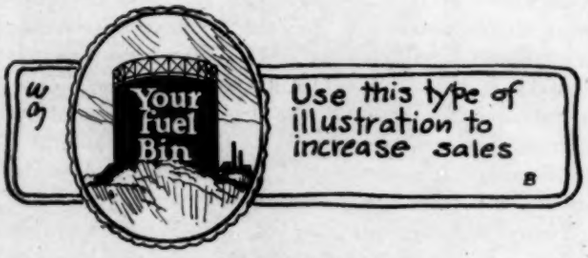
MINIATURE gas appliances, given to the children of purchasers of appliances or sold outright to the kiddies, help materially to further the use of gas service and gas appliances. then again these miniature appliances make wonder-




ful properties for window displays. Two manufacturers, The Ruud Co. and The Roper Corp., have miniature appliances of this kind, perfect little replicas of their standard, "full grown" appliances that instill the idea and desire for gas appliances in the mind of many future home managers.

### SYMBOLS HELP SELL

A NUMBER of gas companies over the country are using symbols to help sell gas service. The Laclede Gas Light Company, St. Louis, and the Illinois Power and Light Corporation have both used a symbol in the form of a gas holder woven into the border of their newspaper advertisements. The Laclede Company features a holder with the wording "Your Fuel Bin," and The Illinois Company has one with the name of the company lettered on it. This sort of advertising is productive, though it is very hard directly to trace results. The big thing is to keep everlastingly selling gas service to the people.

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### FLOPPY FELTS AND SPACE HEATERS

RIGHT now in the hottest part of the year millinery makers are selling floppy felt hats and gas merchandising men are bringing out the 1927 models of space heaters. Why not! Don't folks start to worrying about fall and winter as soon as vacation season starts? Would it not be a good idea to fill a window full of the new 1927 models now and offer to let the customer choose the heater he wants to be held in readiness for the first cool spell? Why not say: "Choose your new 1927 Radiant Gas Fire now—Pay $—— down and we will hold it for

you for installation September first—your first payment to be made with your September gas bill October first."

# INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

## Lesson No. 129

### Combustion

**Properties and Specifications of Fuel Oils**

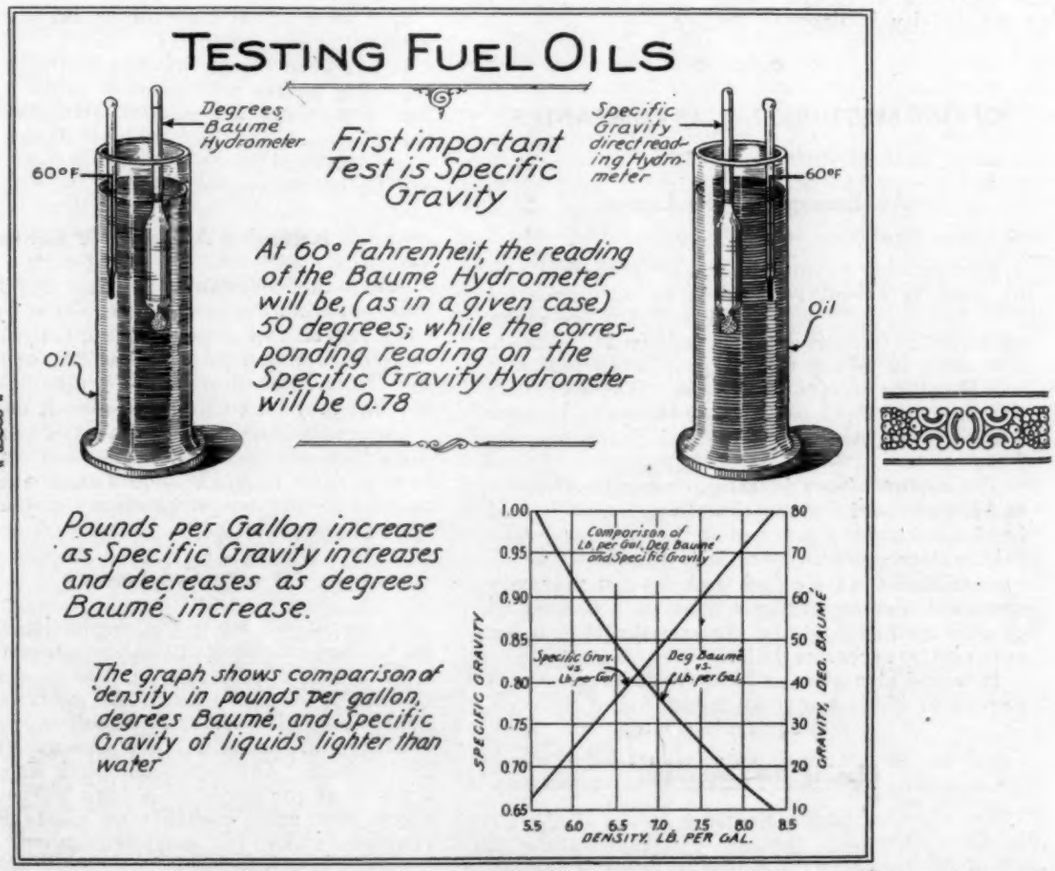
There are in all eight different properties of fuel oil that are of importance in controlling its use as an industrial and domestic fuel. These are in order:

1. Specific gravity.
2. Heating value.
3. Flash point and fire point.
4. Congealing point.
5. Viscosity.
6. Sulphur content.
7. Specific heat and coefficient of expansion.
8. Moisture and sediment.

**Specific Gravity**

The first important property of fuel oils is its specific gravity. One good reason for this is because fuel oil is sold by volume and not by weight, and hence it is important to be able to make accurate specific gravity determinations. It should always be remembered in taking the specific gravity of a substance that this property varies in accordance with the temperature and the specific gravity reading without information as to the temperature at which it was taken is really of very little value.

In connection with specific gravity determination it should be mentioned that there is a standard rela-



tion between the viscosity of the liquid in pounds per gallon, and the specific gravity and the degrees Baume, all being considered at a standard temperature of 60° F. The relation between degrees Baume and specific gravity is given by the following formula:

$$\text{Degrees Baume} = \frac{141.5}{\text{Specific Gravity, } 60°/60° \text{ F.}} = 131.5$$

(A. P. I. Std.)

The relation between the weight in pounds per gallon and specific gravity (on the basis of water as unity) on the one hand, and weight in pounds per gallon and degrees Baume on the other hand is shown in the accompanying figure. From this it will be seen that an oil of 40° Baume gravity will weigh approximately 6.8 pounds per gallon, while an oil of 50° Baume will weigh approximately 6.5 pounds per gallon. This merely indicates that the degrees Baume increases as the oil becomes lighter in weight, therefore decreasing in the specific gravity. On the other hand, an oil having the specific gravity of 0.3 will weigh 7.5 pounds per gallon, while one that has the specific gravity of 0.95 will weigh approximately 7.95 pounds per gallon. In one case the weight in pounds per gallon varies directly as the specific gravity and in the other case indirectly as the density in degrees Baume.

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## OFFICE METHODS IN GAS COMPANIES

(Continued from page 71)

### An Example of the Letter

My dear Mr.....:

By referring to our records we note that you or your representative called at our office on ..... and requested that we make an investigation of your gas service at..... The clerk in taking this request noted that you would call to receive the report. However, it is possible that there might have been a misunderstanding and that you have anticipated hearing from us.

The report of our investigation is now ready, and if you could find the time to do so, we would be pleased to have you call at the office and take this matter up with our Chief Clerk or one of his assistants, as we feel that we can give you some valuable suggestions relative to the use of gas, as well as point out to you the reason for apparently excessive bills.

It would also give us pleasure to meet you in person in discussing this report.

Very truly yours,

### Closing the Complaint

When the complaint is finally disposed of, the clerk completing it should indicate this fact on the first copy of the report of investigation form in the space provided, and should return the report to the clerk in charge of the pending file. Before forwarding the complaint to the completed file, which may be kept in a central filing department, the file clerk removes the request form from the visible file. Since the only function of this form is that of follow-up, it may now be destroyed.

The possibilities of follow-up control by means of visible signals deserves special consideration. A complaint report should never be removed from the pending file without a follow-up signal being placed on the request for investigation form in the visible file. These signals may be of different colors, and may show in this manner who is handling the report in case the papers are not in the pending file, and at the same time insure the follow-up of the report to its final completion.

### The Signals

For example:

1. A green signal may show that the follow-up is for the return of the copies of the report of investigation from the Service and Accounting Departments.
2. A red signal may show that the report has been released to a complaint clerk for study. If the customer calls while the report is out of the file, the signal is then of particular advantage in locating the report.
3. A blue signal may show that a letter has been written to the customer.

It has been found that the majority of customers receiving letters will come in to discuss the report. But if the customer pays no attention to the letter, the gas company has at least done its duty, and when the final follow-up date arrives the complaint can be considered completed.

### Releasing Account for Collection

When the complaint is finally disposed of and is removed from the pending file, the copy which originally served as the pending-file copy should be sent to the Collection Department as an indication that the "Hold-Up Notice" is no longer in effect and the account may be collected in case it is delinquent.

One more suggestion as to the pending file. It should be near—very near—to all those who may have to refer to it. It should also have a direct connection to any telephone clerks whose duty it is to receive complaints.

### Conclusion

In conclusion, we would emphasize again the need for trained employees to handle complaints. No routine, however well planned, will be a success unless the employees who meet the public are constantly guided and advised. Only training, experience, personality and earnestness will make a successful complaint clerk. The complaint clerk must never make a guess at the cause of a high bill; he must never argue, but must explain; he must always see the customer's side, but must remember that he is representing the company.

In this article we have mentioned the extreme care that is needed in certain phases of collection procedure. Our next article will deal in detail with the collection problems of the gas company.

# Correct Rate Structure Essential to Gas Process *

## Rate committee of Michigan Gas Association reports

YOUR committee believes that an enumeration of the arguments for more flexible rate schedules, for rates which will recognize load factor and which will conform to the cost of furnishing the service is unnecessary. The fundamental principles are known. The needs of the situation are obvious.

The committee realizes that some companies are faced with conditions which do not permit them to adopt and put in force those rates which they would like to use. There are franchise conditions which prevent the exercise of free judgment in this respect. There are existing rates and contracts which cannot be set aside summarily. No company can with safety do violence to existing rate schedules. The present revenues and relations with customers must be considered. These are practical problems, however, which must be worked out by the companies affected **There should, however, be a goal in sight,** an end to be sought. What may be said in this report we hope may be of assistance in guiding such companies to a sounder basis in such situations.

### Industrial Competition Keen

In the field of industrial gas sales competition is keen. Other fuels are available to, and are widely used by, industries. This competition will be overcome successfully because of the reliability and flexibility of gas service, as well as its low cost. These are matters within the province of the Commercial Department. These departments of the various companies will secure the business provided they are given adequate tools to work with, namely; rates which are constructed on a sound and flexible basis.

The rate-maker must always remember, however, that competition does not justify discrimination. He may divide customers into classes and design different rates for such classes. The law does not prohibit classification. It does insist, however, that differences in rates must be fairly proportionate to the differences in cost of the service. Customers using like service in like manner should receive like rates.

We believe that no fundamental difference exists in the theory and practice of rate making as between the gas and electric utilities. The electric utilities generally have worked out their rate problems with marked success. They have developed the use of electricity in homes and stores to a remarkable extent. They have built up a tremendous power business. They have accomplished these results largely because of certain definite methods of rate practice and by certain types of rates. Analysis will show that there is a remarkable similarity in the structures of the rate schedules of electric utilities throughout the country—particularly with reference to power rates.

Those facts which the gas industry is now developing in connection with rate making have been known to, and have been utilized by, the electric utilities for a number of years. Let us recognize this and adopt their methods and their rate structure wherever applicable to the gas business.

### The Rate Schedule

The majority of gas utilities today have one rate schedule—a rate based on quantity only—varying with the amount of gas used and recognizing no other factor. This form of rate is absolutely inflexible and unsound economically. It is a poor tool to work with. The electric utilities, in most instances, have a number of different rate schedules. They have never hesitated to create a new class and adopt a new rate when the conditions demanded such action and the facts justified it. We must do likewise. There should be no hesitancy in the general adoption of this policy if domestic and industrial sales are to be encouraged, greater volume of output secured and unit costs lowered.

The management which fails to seek greater volume of sales, when this can be done at compensatory rates, is short-sighted. In the long run failure to seize opportunity for large scale production hurts the community served as well as the utility. Greater efficiency in the manufacture of gas has been obtained in recent years largely due to the use of labor-saving machinery. This, however, has meant larger investment and increased fixed charges. This condition in turn demands greater volume of production in order to keep the fixed charges per unit down.

### Domestic Sales

In the field of domestic use of gas we face a serious situation. Have you examined your domestic sales per customer for the past ten years? Have you found that sales per customer increased up to 1920 and are now decreasing? Many of us have been surprised to find that domestic use of gas per customer is falling off. There are a number of reasons for this. It is certain that baking is not being done at home as much as in former years. Laundry work

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* Read at annual meeting of the Michigan Gas Association, June 24-26, 1926.

is also being sent out of the house to a greater extent than formerly. These and other changes in housekeeping methods are extremely significant from our standpoint.

The greatest opportunity for the general development of domestic gas use is the heating of water. Generally speaking, we should be ashamed of the low ratio of water heaters to the number of homes served with gas. This is most desirable business. The additional investment required to serve a water heater is surprisingly small. The diversity factor of this class of load is excellent. This class of business, however, is very poorly developed. Not only is the percentage of homes using water heaters much lower than it should be, but in those houses using heaters a very large proportion are not using the water heater service throughout the year. Again, a very large percentage of these customers are not using the automatic heater.

### Water Heating Business

There is nothing to be gained at this time by any discussion of the reasons for the poor development of water heater business. It is sufficient for our purpose to acknowledge freely and frankly that one great factor has been our failure to encourage and stimulate this load by a proper rate structure. In most cities the maximum or top step of the rate schedule extends out to a monthly consumption which is so large that the gas used for water heating all comes within the first step and pays the top rate. That rate, in most cases, is too high to obtain the fullest development of water heating business. It is greater than the cost of furnishing this additional service and frightens the prospective water heater customer. On the other hand a rate schedule which breaks at a low point, say, 2,000 to 3,000 cu. ft. per month, gives a lower rate to other customers who are not entitled to it from the standpoint of the cost of service as their load factor and diversity factor are not nearly as good as that of the water heater user. Here is a real opportunity to create a separate classification, and here are present all the reasons for such a step.

The chairman of your committee wrestled with this problem of a rate for water heaters for a long time. Finally, after considering several plans and after investigating the accounts of thousands of water heater users in several cities, a rate schedule was adopted and put in force in several cities served by Consumers Power Company and other associate companies. Experience with this rate has not been sufficient as yet to determine whether or not it needs some adjustment. It seems to be working out very successfully so far and the sales departments are enthusiastic over it. The rate as applied in Jackson is attached to this report and your comments and criticisms will be appreciated. Frankly, this rate is an adaptation of a rate structure long successful in development of use of electricity by residences.

### House Heating

No discussion of the desirability of gas house heating from the standpoint of the gas company is necessary at this time. There has been enough said on this subject in the past two or three years to enable each company to decide whether it is going into this business or not. We believe it is safe to say that the great majority of the companies are either already furnishing gas house heating service or are preparing to do so.

The average price to be obtained from house heating must be determined by each company. Whether that average shall be 60c., 70c. or 80c. per M, or some other price, must depend on the cost of manufacturing and delivering gas in the particular city under consideration. It must also depend on the price of the competing fuel, which is oil. These and other factors will fix the average price per M cu. ft. in each community.

### Form of Rate Important

The form of the rate is our concern at this time. There are a few of the large gas companies in the country whose ordinary domestic rates are low enough to handle house heating quite successfully. There are instances where the gas is purchased by the company as a by-product of a coke oven plant, or where, for some other reason, the gas rate is unusually low. The great majority of companies, however, cannot secure gas house heating on the ordinary domestic rate. Their problem is to design a rate which will get this business and pay the cost of furnishing it together with a profit.

House heating is a separate, distinct class of service. It should be handled on a separate, distinct class of rate, unless there are very strong local reasons for not doing so. The following rate schedule has been put in force by the Consumers Power Company in all of the localities it serves. It is here presented for your consideration. The particular rate shown is the one in force in Saginaw. The rates in the other cities are of the same type but with different charges per 100 cubic feet.

### Saginaw House Heating Rate

Who May Take the Service:

Customers using gas for house heating purposes.

Rate:

1 cent per month per square foot of required radiation, payable on the first of each month, October to May, inclusive.

Plus a charge for gas as follows:

12.5 cents net or 13.5 cents gross per 100 cubic feet—first 2,500 cubic feet per month.

9.0 cents net or 10.0 cents gross per 100 cubic feet —next 2,500 cubic feet per month.

6.0 cents net or 7.0 cents gross per 100 cubic feet —all over 5,000 cubic feet per month.

Discount:

The difference between the net and gross rates above specified, or one (1) cent per 100 cubic feet.

Minimum Charge:

The fixed charge included in the rates.

No bill for the heating season, October to May, inclusive, shall be less than $100.00.

Determination of Required Radiation:

For the purpose of applying the fixed charge the customer's required radiation will be determined as follows:

1½ square feet for each 200 cubic feet of building contents (excluding cellars and attics).

Plus

1½ square feet for each 20 square feet of outside building wall,

**Plus**

1½ square feet for each 2 square feet of glass.

### Features of Rate

The above rate has certain features to which I would call your attention:

(a) It avoids the use of demand meters and yet includes a fixed charge. That fixed charge is based on the factor of required radiation, which experience in central station heating has shown to be logical and a fair method of distributing fixed costs.

(b) The rate permits the supplying of all gas through one meter, as it automatically takes care of ordinary domestic uses during both heating and non-heating seasons.

(c) It removes the liability of discrimination as it does not enable the heating customer to secure for cooking and water heating any rate lower, as a general rule, than other customers not using gas for house heating obtain the same cooking and water heating service.

(d) The rate is so designed that no direct comparison with industrial rates is possible. This, in our opinion, is important.

(e) The fixed charge smooths out the monthly bills.

(f) The rate is attractive with its fixed charge of one cent per square foot of required radiation and its gas charges expressed in cents per 100 cubic feet.

The determination of required radiation is not a difficult job, and it is essential in any event. In working out any house heating proposition a thorough understanding of the requirements in each case and an accurate estimate of probable cost of heating necessitate careful determination of required radiation. The factors which enter into the determination of required radiation are such that its use as a factor in the rate puts a premium on well insulated and well constructed houses and on efficient use of gas as a fuel.

### Industrial Rates

Turning to the question of rates for commercial and industrial uses of gas we see no reason why the power rate structures of the electric utilities should not be adopted. We refer to the load factor rate, subject to such modifications as may be advisable for different classes of customers with different characteristics.

It has long been recognized that one power rate is not adequate to handle all power business. Nor will one industrial gas rate be sufficient to handle all commercial and industrial gas business. There are customers with demands of but a few hundred cubic feet. On the other hand, there are customers with demands running into many thousands of cubic feet per hour. Many users have very uniform loads from hour to hour, day to day, and month to month. Others have pronounced daily or seasonal variations in their use of the service. There are customers with good load factors and others who are very irregular in their demands or consumption, or both. In other words, there are many and varied conditions to be met and an adequate set of rates must recognize these conditions.

### Fixed Charge Plus Surcharge

There should, in our opinion, be a rate with a fixed charge based on demand, plus a charge for gas. There should also be a rate with no fixed charge but with higher rates per 100 cubic feet, together with a high minimum charge. Other forms may prove necessary for certain specific cases.

As an example of the fixed charge rate the following is submitted:

$—— per month per 100 cubic feet—first 500 cubic feet of demand.

$—— per month per 100 cubic feet—next 2,500 cubic feet of demand.

$—— per month per 100 cubic feet—all over 3,000 cubic feet of demand.

**Plus a charge for gas as follows:**

— cents per 100 cubic feet—first 100 hours use per month of demand.

—cents per 100 cubic feet—next 100 hours use per month of demand.

— cents per 100 cubic feet—all over 200 hours use per month of demand.

As an example of a rate without a fixed charge the following is submitted:

— cents per 100 cubic feet—first 30 hours use per month of demand.

— cents per 100 cubic feet—next 60 hours use per month of demand.

— cents per 100 cubic feet—all over 90 hours use per month of demand.

Minimum charge—$—— per month per 100 cubic feet—first 500 cubic feet of demand.

$'— per month per 100 cubic feet—all over 500 cubic feet of demand.

The demand interval may be 30 minutes or it may be an hour. Provision should be made that no demand for billing purposes in any month shall be less than a certain percentage of the highest demand of the preceding 12 months. That percentage should ordinarily be around 60%. This protection against great fluctuations in demand is necessary.

Provision may well be made to disregard demands made at night in order to encourage the use of gas by bakers and other classes of users who may be able to make their greatest use during the night hours. This is logical and a premium should be put upon such a load characteristic.

These rates, of course, call for the measurement of demands. Meters are available for measuring demands of any size. It would not, however, seem to be proper to use the recording type of meter for the smaller customers. The expenditure is too large to be justified. On the other hand, indicating type meters are developed which are much less expensive and entirely adequate for the smaller users.

**Conclusion.**

The committee also believes it is highly desirable that all house heating, water heating and industrial rates be expressed in cents per 100 cubic feet instead of in dollars per 1,000 cubic feet.

Your committee is convinced from the tremendous demand which is being made for gas for industrial and commercial purposes that the next few years are going to see the greatest development in gas sales that any similar period has ever witnessed. With this in mind we urge the companies to give serious consideration to the designing of rates which will put them in a position to secure this increased business and improve their earnings. This will be beneficial to both company and the public for it is only through greater sales and lower unit costs that lower rates generally may be obtained.

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## GUMMY DEPOSITS IN MAINS AND METERS

(Continued from page 76)

between 20° and 100° C., (2) between 100° and 120° C., (3) between 120° and 140° C., (4) between 140° and 160° C., and (5) between 160° and 200° C. and their volumes were measured. In the fraction boiling over under 100° C. would be found practically all of the benzene and some toluene; in the fraction boiling between 140° and 200° C. would be found styrene (boiling point 146° C) and indene (boiling point 182° C). It is obvious that the fraction boiling over under 100° C. should be as large as possible and the fraction boiling over between 140° and 200° C. as small as possible. It has been observed that in those plants where no gummy deposits have occurred in meters the benzene fraction is about sixty per cent. by volume of the "light oil," and the fraction boiling over between 160° and 200° C is about three to eight per cent. of the "light oil."

The temperatures in the carburettor and superheater were measured by thermocouples which had been carefully checked with a standard at the Chemical Engineering building. The gas makers in observing temperatures, prior to this investigation, read only the average temperatures in the superheater during the first run after filling the generator. After we had made a number of tests they were instructd to read the highest and lowest temperatures at the base of the carburettor and at the base of the superheater on each cycle.

**Results**

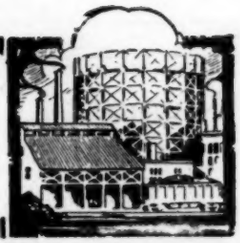
Tests No. 1 and 2 showed a benzene content of 4 and 10 per cent. respectively and the fraction boiling over between 160° and 200° C. was found to be 64.05 and 49.95 respectively. It seemed apparent that the oil sprayed into the carburettor was not effectively gasified. The oil spray used in the water gas set at that time consisted of a pipe with a single opening in the spray head. In order to obtain a better dispersion of the oil it was decided to replace this oil spray head with one which had six orifices. In order to admit the oil into the carburettor at the same rate it is obvious that the combined area of the six orifices had to be practically equal to the area of the single orifice in the original spray head. The first tests made with the new spray head showed a benzene fraction of approximately 61 per cent. and the higher boiling point fraction about 12 per cent., as compared with a benzene fraction of 10 per cent. and a higher boiling point fraction of almost 60 per cent. in tests 1 and 2.

The eleven-foot water gas set in use when these tests were made was equipped with back-run and the carburettor had seven rows of checker brick. It was considered advisable to increase the checker bricks in the carburettor to fifteen rows. While this change was being made we operated a ten-foot set which was not equipped with back-run. Since on those sets equipped with back-run, the time of oil input must necessarily be short, we made some tests to determine the effect, if any, of the longer period of oil admission. That water gas set also was equipped with an oil spray which had six orifices and the test showed practically the same results as the previous test.

Jim wants his breakfast so that he may be at work on time. The children must be fed, dressed and sent to school. Morning is a busy time for Mother. She needs modern appliances to enable her to care for the needs of her family without unnecessary fatigue.
Gas and the modern Gas range lighten Mother's work. Ask Dad to visit the Gas store this week and see the modern Smoothtop. Ten to one he will trade in the old range for a Smoothtop. Gas is the quickest, cheapest and always on tap.
Portland Gas & Coke Co.
Gasco Bldg.
Fifth and Alder

*"The Morning Rush" aptly portrayed by the Portland Gas and Electric Co.'s advertisement, and a suggested remedy.*

# NEWS OF THE GAS INDUSTRY



## A. W. Robertson Elected President of Philadelphia Company

John J. O'Brien, president of Standard Gas and Electric Company, announces the election of A. W. Robertson as president of the Philadelphia Company ,and affiliated corporations, effective September 1, 1926.

Mr. Robertson is well qualified, both by training and experience, to head the utility companies serving Pittsburgh and vicinity. A resident of Pittsburgh for twenty years, he has been in close touch with the development of the greater Pittsburgh district, and his experience as an executive of the Philadelphia Company dates back to 1913. As vice-president in charge of public relations he has been in touch with operations generally, and in direct charge of the general service department, which maintains all relations with domestic customers of the company, the adjustment or claims department, the advertising department, and relations with the public service commission.

Andrew Wells Robertson was born in Panama, New York, in 1880. He attended Allegheny College at Meadville, Pennsylvania, graduating in 1906, and entered the law school of the University of Pittsburgh in that year. He was graduated with the degree of LL.B. in 1910, and was admitted to the bar. After several years of general law practice he became attorney for the Pittsburgh Railways Company and Duquesne Light Company in 1913. In 1918 he was made general attorney for the Philadelphia company and affiliated corporations, and in 1923 was elected vice-president in charge of public relations, retaining also his position as general attorney.

### Changes in New Business Department at Fort Collins

C. R. DeHoff, gas new business superintendent at Fort Collins, has resigned, effective July 15, to become branch manager for the Mueller Furnace Company with headquarters at Salt Lake City.

Mr. DeHoff has made a most enviable record since assuming responsibility for new business results in Fort Collins about a year ago.

With the approval of L. W. Cody, Fort Collins manager, and of C. A. Semrad, vice-president and general commercial manager, L. E. Wilcox has been appointed to succeed Mr. DeHoff.

Mr. Wilcox was formerly a house heating sales engineer in Denver, where he made a splendid record in selling gas for house heating purposes. More recently Mr. Wilcox has been acting successively as territory representative, house heating sales engineer and industrial fuel representative in Fort Collins. He had much to do with the sale, specifications and installation of 185 complete gas-fired house heating installations which were made by his company since January 1. He comes to his new work extremely well equipped and assured of the same splendid cooperation from his associates which caused Mr. DeHoff to be credited with such an outstanding record.

* * *

### New Rates for Jacksonville, Fla.

The new rates of the Jacksonville Gas Company, Florida, giving this city one of the lowest rate schedules in the South, have been approved by the city commission and established for two years. They will become effective on meters read on and after August 1.

The commission examined the proposed new rate schedule which will mean a substantial saving to all consumers and which is especially attractive to industrial gas users and passed a resolution approving without dissenting vote.

### Heating Gas Rates Filed

Boston, Mass.—Following the repeal of the "sliding scale law" on July 1, the Boston Consolidated Gas Company has filed with the Public Utilities Commission a schedule of rates for the sale of gas for house heating purposes.

The rate for the new class of service proposed will be 65 cents per 1,000 cubic feet, with a discount of five cents per 1,000 for payments made within 10 days from the date of the bill.

Gas for cooking purposes, it is understood, will continue at the 1.20 figure. The existing rate of $1.20 per 1,000 cubic feet for illuminating gas sold by the company will not be changed.

A service charge, in addition, will be imposed for house-heating gas. This charge, an annual one, will be at the rate of 17½ cents for each square inch of installed warm air pipes from furnaces and 17 cents for each square foot of installed steam radiation in office buildings.

The foregoing service charge is to be paid in eight monthly instalments during the months of September to April, inclusive.

* * *

### MUSIC OPENS GAS OFFICE

#### Brooklyn Borough Company Welcomes Sheepshead Bay Folk

Brooklyn, N. Y.—Due to the increase in population in the Sheepshead Bay district during the past few years, the Brooklyn Borough Gas Company has opened a new branch office.

During the afternoon Miss Mary E. Dillon, president and general manager, and Mrs. Helen Steers, vice-president, were on hand to welcome the residents who inspected the office. The Melani trio gave a classical program.

James Taunton, for many years employed at the company's main office, has been appointed manager of the new office.

# Memorial Committee Adopts Resolution on Death of Henry D. Whitcomb

The following is a report of committee on memorial adopted by the Society of Gas Lighting, at a meeting July 8, on the death of its member, Henry D. Whitcomb:

The society and its members have suffered a great and enduring loss in the sudden death of Henry Donald Whitcomb; who has been a member since 1915 and was a personal friend of all of us. His strong and cheerful personality made him a notable figure in our meetings and he will be missed as long as any of the present members survive.

Mr. Whitcomb was born in Richmond, Va., in 1869. After attending school in Richmond, he went to Stevens Institute of Technology in Hoboken, where he graduated as a mechanical engineer in 1892. He was a member of the Chi Phi fraternity and was always a favorite among the members of his fraternity as well as among the other students.

From 1892 to 1901, he was connected with the United Gas Improvement Company and during a part of this period he was superintendent of the Atlanta Gas Company and at another time superintendent of the Savannah Gas Company.

In 1901 he went to Newark with the Essex and Hudson Gas Company which later became a part of the Public Service Corporation of New Jersey. He has been the operating head of the gas department since the formation of the latter company in 1903 and at the time of his death his title was vice-president in charge of gas operation of the Public Service Electric and Gas Company.

The end came without warning in his office on May 8th and was a great shock to all who knew him. His work has been well and faithfully done and, though he has built up a strong and efficient organization to carry it on, he will nevertheless be sorely missed.

Prominent among the qualities which contributed to his personal charm as well as to his strength as a leader of men was his keen interest in the individuals with whom he came in contact. This interest was felt and appreciated by all who worked for him, and knew that he was in sympathy with them and their efforts and that he was aware of all that they were doing.

He was first vice-president of the Eastern States Gas Conference in 1925 and was president of the New Jersey Gas Association during the same year.

Mr. T. N. McCarter, president of the Public Service Corporation, and for many years closely associated with Mr. Whitcomb, had this to say: "He was a simple, old-fashioned Southern gentleman, of rugged character combined with great ability and untiring devotion to his work. He not only served this company well, but he gave more than a generation in service to the people of New Jersey in the tremendous upbuilding of the gas industry during the period covered by his administration."

Surely his welcome on the other side has been "Well done, thou good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things; enter thou into the joy of thy Lord."

J. S. DE HART, JR.,
E. H. EARNSHAW,
ALTEN S. MILLER,
Chairman.

* * *

### Eight Corporations Merge

Topeka, Kans.—The State Public Service Commission has approved plans for the merger of eight big public service corporations in southeastern Kansas towns. Under the plan approved by the commission the Union Gas Corporation will become the parent company of a number of local gas properties.

The merger plan places the Union Gas Company in control of the following corporations: Union Gas and Fuel Company, Southwestern Utilities Company, Independence Gas Transportation Company, Southwestern Public Service, Inc., Fredonia Gas Company and Coffeyville Gas and Fuel Company.

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### A. D. Cressler, Gas Engineer Dies Suddenly

Alfred D. Cressler, one of the best known gas engineers in the country, died July 9 at his home in Cincinnati, O., in his 75th year.

Mr. Cressler was born at Lucas, O., and his whole life was devoted to gas engineering. For many years he was president and general manager of the Kerr-Murray Co., manufacturers of gas plant equipment, located at Fort Wayne, Ind. In 1915 he went to Washington, D. C., doing special engineering work. In 1920 he moved to Cincinnati, O., where he lived up to the time of his death.

Mr. Cressler was a member of the American Gas Association and the Engineering Society of Cincinnati.

Mr. Cressler is survived by three sons, Alfred M. Cressler of Haydock, Cressler, Lamson & Co.; George H. Cressler, general sales manager of the Stacey Manufacturing Company, both of Cincinnati, and Kerr Murray Cressler, St. Louis, Mo.

Burial was in the family plot at Fort Wayne, Ind.

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### A. G. A. Gains in Membership

The membership list of the American Gas Association which was issued recently, includes the names of 21 holding companies, 425 gas companies, 385 manufacturer companies and 3,255 individual members. From a beginning of 75 manufacturer companies, in 1918, the membership has grown to the present number of 385. Mr. W. E. Derwent, the chairman of the manufacturer's section of the American Gas Association, states that the goal of the manufacturer's section is a membership of 500 by the October convention.

* * *

### To Extend Gas Mains

Albany, N. Y.—The Public Service Commission today authorized the Elmira Water, Light & Railroad Company to extend its gas system into the town of Horseheads and serve residents there. The company now supplies Horseheads, town and village with electricity and residents of the town asked that the company extend its gas mains.

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### Sterling Range Elects Officers

Philip Will has been elected president of the Sterling Range & Furnace Corporation, Rochester, N. Y. Fred Will, Jr., is vice-president and treasurer and Walter Will is vice-president and secretary.

# Tar from Utica Coke Ovens to Be Worked Up

### Tar Refinery Concern Locates Near Gas Company

Utica, N. Y.—Utica will have another new industry with the establishment here of a distilling plant of the American Tar Products Company of Pittsburgh.

The Pittsburgh firm will start work immediately, it was stated, on the construction of a tar distilling plant which will be erected on a three-acre plot of ground adjacent to the coal gas plant of the Utica Gas & Electric Company at Harbor Point.

The plant will be ready for operation in September, according to present plans of the company.

The new industry will take the raw tar from the coke ovens of the company. It will then be heated in stills to separate the liquid portions from the residue which is called pitch. This liquid distillate is creosote oil which is used in the preservation of wood.

The thick residue which is left after distilling off the oil is a pitch used in the construction of roofing material. Both products will be made here and shipped to creosoting plants or roof-material plants in tank cars.

It is understood that the arrangements between Utica Gas & Electric Company and the American Tar Products Company will insure for years to come that the raw material manufactured here shall be worked up at the local plant to finished products. It will complete another link, the announcement says, in the chain by which the Utica Gas & Electric Company will turn its raw material into products used by the industries and the residents of this section.

### North Carolina Public Service Co. Is New Name of Gas Company

Winston-Salem, N. C.—According to an announcement made recently, the Winston-Salem Gas Company in the future will be known as the North Carolina Public Service Company. The local enterprise was purchased by the public service company in May, 1925, and since that time various matters have been in progress tending to standardize the systems here to conform with the scheme of the owning company. The merger and change of name is now effective.

The General Gas and Electric Company, of which the North Carolina Public Service Company is a subsidiary, bought the Winston-Salem Gas Company from the W. E. Moss Company. Since the purchase was made, various improvements have been effected in the local plant, and new offices have been occupied in the Gilmer Building on West Fourth Street. The company has attractive space, sufficiently large to accommodate the various phases of executive detail and to display the merchandise for prospective purchasers.

Extension of the gas mains has been a big part of the company's local program, and gas service is available now in almost every suburb. Considerable work has been done in the western part of the town and within a short time mains will be laid into Waughtown, it is stated by T. R. Warren, local manager. At the present time the company has only 3,000 customers here, Mr. Warren says, this being a comparatively small number for the population of the city, but the extension of lines will result in many new customers and the manager anticipates a decided increase within the next few years.

The North Carolina Public Service Company supplies electric light and power service in Greensboro, High Point, Salisbury, Spencer, Burlington and some smaller towns, and also has gas service at Greensboro, High Point, Salisbury and Spencer and now is installing service at Burlington.

* * *

### Gas Utilities Inc. Buys Gas Plants

Columbus, O.—Gas Utilities Inc. has purchased the Richmond Light, Heat & Power Company, of Richmond, Indiana, The Brazil Gas Company, of Brazil, Indiana, and the Citizens Gas & Fuel Company, of Terre Haute, Indiana, and on June 28th the Indiana Public Service Commission gave its consent to the merging of these properties into the Indiana Gas Utilities Company.

### New Gas Line to Rio Grande Valley

San Antonio, Tex.—Investigations are being made in and around certain towns in the Rio Grande Valley part of Texas with the intention of running a gas line into this section if the surveys prove worthy. The surveys are being made for several New York capitalists with Lasby & Crawford of San Benito doing the actual work.

The population in the majority of the towns and cities in the Valley is twice of what it was in 1920 and there is a real need for this fuel in all parts. It is pointed that a line could easily be run from the Webb county fields thus assuring of a steady flow of fuel at a reasonable cost.

Several other investigations have been made previously, but all have failed to materialize. However, it is hoped that this latest move will develop into a practical fact. The majority of the residents of the Valley know gas and appreciate it. It is also pointed out that with a new line entering this district the sale on gas appliances would be enormous since this is practically a virgin field.

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### Consolidated Utilities Co. Buys Properties

Bismarck, N. D.—Consolidated Utilities Company purchased the gas properties at Bismarck and Valley City on March 1st and are spending about $100,000 this year in improvements to the properties. In addition thev have obtained a franchise at Mandan, a town of 5,000 population and situated on the west side of the Missouri River six miles from Bismarck. They will run a high pressure line to Mandan this fall and will lay about five miles in the town next spring. This expenditure, it is estimated, will run close to $100,000 and will include the necessary additions to the Bismarck plant to take care of this high pressure distribution.

* * *

### Elmira Company Extends Service

Albany, N. Y.—In response to residents that they be given gas service, the Elmira Water, Light & Railroad Company to-day applied to the Public Service Commission for the necessary state authority to extend its lines into Big Flats township, Chemung county, under the terms of a franchise granted by the town board.

# Natural Gas Supplied to Santa Ana

### High Pressure Storage System Used

Santa Ana, Calif.—A ceremony of great interest to all of Orange county, the most productive county per acre in the United States, of which Santa Ana is the county seat, and a ceremony which marked a great forward step for the Southern Counties Gas Company, occurred here recently.

Before a large gathering of city and county engineers and officials, together with officers and executives of the Southern County Gas Company, Mayor Frank L. Purinton, on behalf of the city government, turned the valve which permitted the first natural gas to flow from the newly erected high pressure holders into the city distribution system.

This act made available to the city of Santa Ana a reserve gas supply of 1,000,000 cubic feet, which is considered more than sufficient to take care of peak requirements in this city.

A feature of the ceremony was the introduction by J. C. Hayden, retiring district manager of the Santa Ana division of the company, of the new district manager C. E. Rutledge. Mr. Hayden has been transferred to the Los Angeles division of the company.

A. F. Bridge, executive engineer for the company, explained that the Santa Ana holders are the largest storage tanks of this high pressure type ever installed and Southern Counties Gas company pioneered in the design and use of these holders.

In 1925, Mr. Bridge explained, the company made a thorough study of storage needs throughout its territory and that between now and 1920 the company will install holders with several million cubic feet capacity at various load centers. During the last several months the company has erected high pressure storage tanks in Newport Beach, Orange, Sierra Madra, Ontario and Santa Ana, with a total capacity of 2,100,000 cubic feet.

The holders here, which are in four units with a combined storage capacity of 1,000,000 cubic feet were erected at a cost of $105,000. The total cost of the holders and the filling and discharging lines of eight inch and sixteen inch diameters was $160,000.

### High Pressure Holders Filled From Lines

The holders are filled directly from high pressure transmission lines and discharge into the local distribution system without any additional compression of gas. They are protected with pop valves, set to blow slightly above 15 pounds. There also is an eight inch blow-off with 30 foot stack which can be used in the event of fire or any emergency. The contents of the four units can be emptied in a few minutes.

Frank H. Bivens, general agent of the company at Los Angeles, gave some further interesting information about the company.

"The first natural gas was turned into Santa Ana in 1911," said Mr. Bivens. "The first gas came solely from the Olinda oil fields, whereas today the company draws its supply from all of the substantial gas producing fields in Southern California. Our lines and mains are closely inter-connected so that we can transmit gas from any of our several sources directly to Santa Ana.

"In 1911 there were 1900 meters in Santa Ana and olly 3100 in the entire county. Today there are 7622 meters in the city and 20,953 in the county—an evidence of the way in which Orange county has grown during the past fifteen years.

"The capital investment of the company in Santa Ana today is more than $1,000,000 compared with but $240,000 in 1911. The capital invested in the county today is more than $3,000,000, while in 1911 it was but $446,000. The annual Santa Ana payroll for the 93 regular and semi-regular local employees is approximately $200,000.

"Last year the company expended $4,000,000 to improve its service. One expenditure alone required $1,800,000. This went into our Ventura compressor station and into a 90-mile, 13-inch line, which is bringing millions of feet of natural gas from Ventura to this part of our system daily. Last year we added more than $350,000 to our capitalization in this district."

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### William J. Downing Dies Suddenly

William J. Downing, president of the Citizens' Gas Company, Salisbury, Md., died suddenly July 3rd at his home. Death followed an attack of acute indigestion and heart trouble.

Mr. Downing was 74 years old. Born of poor parents who occupied a farm two miles north of Salisbury, on May 6, 1852, he was denied an education other than that to be obtained from the elementary grades of the public schools.

Forced by financial straits to abandon school while in the fifth grade, he secured employment at a wage of 50 cents per day. It was then that he began a business career that reached a peak rarely accorded a man of a small town. In 1882 he went to Petersburg, Va., and later to Wilmington, N. C., with the Jackson Brothers Company.

Some years later, Mr. Downing returned to Salisbury, and in 1907 he purchased from Louis Delmas, the Salisbury Light, Heat and Power Company. The enterprise at that time was not in a very healthy condition, but under Mr. Downing's direction the business became remunerative and it was sold in 1915 to the newly organized Eastern Shore Gas and Electric Company. During the same period he formed the Downing Concrete Company.

In 1920 he secured controlling interest of the Citizens' Gas Company, which, like his other projects, became a success. The company now supplies gas to the vicinage of Salisbury and Delmar.

### St. Louis New LaClede Value Set at 40 Million

The city of St. Louis told the Missouri Public Service Commission that the valuation to be fixed upon the Laclede Gas Light Co. for the purpose of determining what rates for gas the public here should pay should not exceed $40,000,000.

The Laclede Gas Company is claiming in excess of $74,000,000 as the sum on which rates should be based. The city estimates it would require a rate of $1.40 a thousand cubic feet for gas in St. Louis, compared with the present rate of $1, to yield the company a fair return on that sum. The company disavows any intention of asking for a rate based upon that valuation. However, a $74,000,000 valuation would make it difficult ever to reduce the price of gas over the company's objections.

#### Coincidence of Valuations

The estimate of $40,000,000 by the city coincides almost exactly with the price at which Charles A. Munroe and four or five out-of-town associates obtained control of the gas company in 1924. As has been told, Munroe bought control of the common stock at an average price of about $102 a share. The stock in recent previous years had fallen as low as $40 a share. It now is flunctuating around $160. If Munroe and his associates could sell on the basis of a $74,000,000 valuation, their stock would be worth $350 a share.

This would yield them a speculative profit of many millions of dollars.

In its brief, the Laclede Company suggested that the commission permit it to lower the quality of its gas in St. Louis from 600 to 570 British thermal units, or lower.

The city declares: "The rate charged for gas and the British thermal units are inseparable. A change in one necessarily requires a change in the other. If the commission should permit the heat units to be reduced from 600 to 570, then gas rates should be reduced 5 per cent. (or 5 cents per 1000 cubic feet) for that reason alone."

#### Figures Submitted

Though adopting the price Munroe paid as that nearest to fair valuation, the city sets forth for proper consideration, these other figures:

Original cost, as found by the city engineer, $32,530,442.

Original cost, or investment cost, as found by the Commission's engineer, $33,235,288.

City engineer's (C. E. Smith's) estimate of cost of reproducing the property new, less depreciation, to represent its present condition, $45,-534,600.

Commission's engineers' estimate of reproduction new, less depreciation—two figures, varying on a basis of depreciation theory employed, $49,637,659 and $44,113,174.

Present capitalization, "representing several millions of property not used or useful and including $7,500,-000 of common stock issued as a bonus"—$43,700,000.

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### Ohio Fuel to Merge with Columbia Gas

New York, N. Y.—Directors of the Columbia Gas and Electric Company approved a plan submitted by Philip G. Gossler, president, for a merger of the properties of the Columbia Gas and Electric Company and the Ohio Fuel Corporation. The plan was also approved by the directors of Ohio Fuel Corporation at a meeting in Pittsburgh. The announcement, issued here from the office of the Columbia Gas and Electric Company, said:

"This plan will, in the opinion of the directors, be advantageous to the public and the stockholders of both companies.

"Details are being worked out by the officers and counsel of both companies, and will be explained fully in a communication to be issued to the stockholders as soon as practicable.

"Main features of the plan contemplate the formation of a new corporation with the name Columbia Gas and Electric Corporation, to acquire directly, or through subsidiaries, the properties or stocks of the present Columbia Gas and Electric Company of West Virginia and of the Ohio Fuel Corporation of Delaware.

"Upon completion of the merger, the new corporation will have an outstanding issue of 3,000,000 shares of common stock. To present Columbia common stockholders will be offered one share of the new common stock for each share of present stock, and stockholders of the Ohio Fuel Corporation will be offered for each share of Ohio Fuel stock approximately 35-100 of a share of the new common stock and approximately $15.63 par value of 6 per cent preferred stock of the new company.

"It is planned that the new company's common stock will initially pay quarterly dividends at the rate of $5 a year, the same rate now being paid on the present Columbia stock. The new company will have the benefit of the experience and abilities of the personnel of both present organizations. It is contemplated that George W. Crawford, president of the Ohio Fuel Corporation, will serve as chairman of the board, and that Philip G. Gossler, president of the Columbia Gas and Electric Company, will serve as president of the new corporation.

"Physical properties of the combined systems will include more than 4,860,000 acres of gas, oil and coal lands owned and leased, of which there are now being operated 760,000 acres, with more than 6,950 producing gas wells; a total of over 10,350 miles of field and transmission pipe lines and 7,300 miles of distribution pipe lines supplying natural gas; and also the extensive electric properties of the present Columbia system, including the very efficient new Columbia power station dedicated to public service in December, 1925.

"Territory served by the combined systems covers the major part of Ohio. The new Columbia system will have directly connected more than 1,100,000 gas and electric customers.

"Marked benefits will accrue to the public as a result of this consolidation, through assurance of continuity of most adequate service at reasonable rates to all of the many communities and large populations affected, the conservation of capital in pending and future developments of combined properties and the prolongation for many years of the duration of natural gas service to this important section of the country through conservation of natural gas, the most economical and useful fuel for all domestic and many industrial purposes."

### Dr. Gilbert E. Seil Takes Charge of E. J. Lavino & Company's Research Laboratories

Dr. Gilbert E. Seil, formerly in charge of the Koppers Research Laboratory at the Seaboard By-Product Coke Plant, Jersey City, N. J., has become associated with E. J. Lavino and Company as technical director.

Dr. Seil has had a very wide experience in the chemical industry as chemical director of The Metal & Thermit Corp., as a fellow at Mellon Institute and as research chemist for the Koppers company.

Dr. Seil will have charge of chemical laboratories and will direct the activities of the technical department of E. J. Lavino and Company.

The personnel of the technical department includes chemical engineers, metallurgists and refractories engineers, most of whom have for sometime been managing the various departments or subsidiary companies. The primary object of this technical department is the co-ordination of the technical and engineering activities of these men in the improvement of standard products and the development of new products.

However, new research laboratories now under construction will enable E. J. Lavino and Company, through its technical department, to offer research and engineering service to the many consumers of its various products.

Consumers of ores, alloys, minerals, chemicals, refractories and gas purifying materials are urged to make use of the personnel and laboratory facilities of this new department, which are placed at their disposal as a source of unbiased technical information.

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### Contracts Awarded

The Gas Machinery Company of Cleveland, O., has been awarded contract for a new 9-foot carburetted water gas apparatus to be installed at the plant of the Palm Beach Gas Co., at West Palm Beach, Fla.

This new equipment will be placed adjoining the 8-foot set which The Gas Machinery Company furnished about a year ago, and new building and other auxiliary equipment will be provided to take care of the increased capacity.

### Lambert Space Saving Meter

The Lambert Meter Company, Brooklyn, N. Y., announces a new meter which they call a "Space Saving Meter."

The picture practically tells the entire story. Instead of having the index on the front of the meter, this meter is designed with the index on the side. The obvious result being that when the meter is used this way considerable wall space is saved. Whereas the minimum distance across the

front of a standard 5 light meter is 12¾ inches, when connected up in the "Space Saving Meter" the maximum distance across is only 9 inches.

In designing this "Space Saving Meter" no changes were made on the inside of the meter. The meter is standard and can be repaired by any meter repairer. No new or different parts are needed. The parts are interchangeable with standard 5 light meter parts.

The advantages of such a meter in many instances must appeal to gas distribution engineers immediately. Undoubtedly they have encountered numerous locations in dwellings, apartment houses, basements, kitchens, halls, alcoves, etc., where a meter with 5 light capacity and smaller cross-sectional dimensions would be a help. Wall space is not always plentiful. In the case of a bank or battery of ten meters more than three feet can be saved.

The Lambert Meter Company is prepared to build this "Space Saving Meter" in all sizes.

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### An Innovation in Financial Advertising

The popular conception of the investment house is that of a seller of securities. This is but natural because its contact with the public is largely as a distributor of securities to individual investors. The question of the source of these securities is one to which the average layman gives little attention.

The investment house, however, exercises a dual function and purchasing security issues is fully as important as retailing them.

In the usual course of business the investment house participation in the financing of commercial, industrial and public utility companies is a process of the latter seeking out the former as a purchaser. Now, however, we have a case of the old order reversed. One of the leading investment houses in the country—Hornblower & Weeks—in an extensive advertising campaign in the trade and technical magazines is advertising its preparedness to purchase the entire bond issues of sizeable and sound American railroads, utilities, and industrial companies.

This house is a member of the New York, Boston, Chicago, Cleveland, Detroit, Providence and Salt Lake City Stock Exchanges and of the Investment Bankers Association of America and the American Bankers Association. It maintains through centrally located offices in Boston, New York, Chicago, Cleveland, Pittsburgh, Detroit, Providence, Portland, Me., and through over 100 correspondent banks and investment dealers located throughout the country, a direct private wire system whereby it renders a specialized service to investors.

Its facilities include a stock department, handling stock accounts either on a cash or conservative loan basis; a bond department, which buys and sells all issues of bonds and notes of the United States and foreign government, municipalities, railroad companies and equipment trusts and public utility and industrial corporations. This department also deals in high grade industrial and public utility stocks. Its unlisted securities department purchases or sells and secures quotations on all unlisted securities wherever a market exists. A statistical department analyzes securities, reports on market conditions, financial statements of different companies, appraises inventories of securities, furnishes all statistical data and assists in the making of tax returns. Its underwriting department arranges financing for municipalities, railroads, public utility and industrial corporations in any form desired. An expert engineering division is at the disposal of this department and it employs legal talent which specializes in corporate finance. A note department negotiates loans secured by approved collateral for corporations and individuals.